1989 MANAGEMENT PLAN

SOUTHEAST ALASKA HERRING ROE FISHERY

Prepared by

Southeast Alaska Region Staff

Regional Information Report No.[1] 1J89-06

Alaska Department of Fish and Game
Commercial Fisheries Division
Juneau, Alaska

March 1989

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[1] The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc information purposes or archive basic uniterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

INTRODUCTION

Pacific herring stocks exist throughout Southeast Alaska and have been fished commercially since a salting operation was initiated during the 1880s. Most of the catch from the 1890s to 1960s was used to supply herring for reduction to meal and oil. Presently, Southeastern Alaska stocks support two distinct commercial fisheries, a food and bait fishery which occurs during the winter months and a roe fishery which occurs during the spring spawning season. This management plan provides an overview of the 1989 roe herring fishery for Southeast Alaska. The expected harvest levels and management strategy are discussed.

The 1988 Southeast Alaska roe herring fishery harvested approximately 11,300 tons of herring. These landings had a value to the fishermen of approximately $7.5 million. A harvest of approximately 12,700 tons of roe herring is anticipated for the 1989 season.

Southeast Alaska roe herring are commercially harvested by purse seine and set gill net gear types, both included in the limited entry system. During 1988 approximately 119 set gill net and 52 purse seine permits were issued and similar numbers are expected for the 1989 season. There are currently four roe herring fishing areas in Southeast Alaska consisting of two exclusive purse seine and two exclusive gill net areas (see map for location of the areas). Each of these fisheries will be discussed separately.

GENERAL INFORMATION

A complete listing of the existing commercial herring fishing regulations is available in the current Commercial Herring Regulation Booklet. Copies of these may be obtained at any Fish and Game Office. The staff members listed at the conclusion of this plan are available to provide further details. New regulations for the set gill net fishery are presented later.

Vessel Check In And Check Out Procedure

The department is requesting tender and fishing vessels to check in and out of the fishing areas with department personnel located on the fishing grounds. This is being done to facilitate timely assessment of herring landings. Operators who are transporting the fish out of Alaska prior to processing must submit a fish ticket before departing the State.

Reporting Procedures for Floating Fish Processors

Operators of floating fish processing vessels will be required to report in person, or by radio or telephone, to the local representative of the department located within the management area of intended operation before the start of processing operations. The report must include the location and date of intended operation. These reporting requirements are specified by regulation (5AAC 39.130(f)).

Announcement of Openings and Closures

Openings and closures of fishing areas will be accomplished by Emergency Order. Announcements will be made on the fishing grounds over VHF radio and by contacting fishermen individually when possible. The frequency for receiving these announcements will be indicated on the fishing grounds. Fishermen should be advised that short notification of opening and closing times should be expected. This is necessary to ensure fishing opportunities prior to major spawning and to maintain the harvest at desired levels.

The department will attempt to begin monitoring the various herring stocks in advance of the expected fishery opening dates. If spawning threshold levels are determined to be met, those fisheries will be placed on a two hour notice prior to the opening to reduce the reaction time needed to open the fishery. These notices will be announced at least 36 hours prior to any fishing, unless this procedure will result in a loss of the fishery due to heavy or earlier than anticipated spawning.

Management Strategy

The management strategy for Southeast Alaska herring fisheries is based on the availability of mature herring of good roe quality. Good quality herring is generally considered to contain a roe percentage of approximately 10% or more mature roe. Fishing is not allowed unless a minimum threshold level of mature herring is available for spawning. The "threshold level" is the herring biomass needed to meet minimum spawning requirements. The established threshold levels for the herring roe fishing areas are as follows:

1.	Seymour Canal	6 million pounds (3,000 tons)
2.	Kah Shakes	10 million pounds (5,000 tons)
3.	Lynn Canal	10 million pounds (5,000 tons)
4.	Sitka Sound	15 million pounds (7,500 tons)

Management is further based on total stock biomass, age, growth characteristics and spawning success. Biomass estimates are derived from hydroacoustic and spawning ground surveys. Age and growth information is obtained by sampling the commercial catch, test fishing, beach seining and from trawling conducted in conjunction with hydroacoustic surveys from State vessels. Spawning success is measured by diving and aerial surveys.

The allowable harvest is based on a graduated scale that allows for higher harvest rates as the herring population increases relative to the threshold level. This approach is consistent with the policies of the Alaska Board of Fisheries for maintaining annual harvest rates between 10-20% of the mature herring in excess of established spawning threshold levels. When the spawning stock is at the minimum threshold level, a 10% harvest is allowed. The harvest rate increases an additional 2% for every time the spawning stock biomass increases by an amount equal to the threshold level. It reaches a maximum of 20% when the population is 6 times the threshold level.

The harvest rate for any multiple of the threshold level from 1 to 6 can be estimated from Figure 1 or by performing the following mathematical calculation:

$$\text{Harvest Rate} = 8 + \left[(2) \times \frac{\text{Spawning Population Size}}{\text{Threshold Level}}\right]$$

The spawning population size and threshold levels are expressed as millions of pounds. The spawning biomass is determined either from spawn deposition sampling conducted during the previous season or current year hydroacoustical surveys. In cases where spawning ground surveys are utilized, the estimate only includes mature herring that spawned the previous season. It would not account for any mortality of the herring since the spawning occurred nor would it include any additional recruitment that may have been realized since the surveys were completed. For those instances when the population estimate is derived acoustically, only those herring that would be expected to contribute to the spawn will be included. This will be determined by sampling the population for size composition.

In Southeast Alaska herring generally reach maturity when they obtain a size of 185 mm (as measured from the tip of the snout to the hypural plate) which is achieved by some 3 and most 4-year-old fish. All herring that are determined to be present in the population that are less than 185 mm will not be included in the calculation of threshold harvest levels or harvest rates. The 185 mm size is designed to base harvests on mature larger herring. Immature and small recruit spawners are not included in biomass estimates calculated from acoustic surveys.

Roe Quality

An objective in herring roe fishing is to take the allowable herring at a time when the roe percentage is high, yielding higher value to fishermen. This is evaluated by sampling prespawning herring populations. Sampling is completed with the cooperation of the fishermen and trained industry technicians. All test fishing activities must be authorized by department biologists on the fishing grounds.

GILL NET FISHERIES

The two set gill net sac roe fishing areas in Southeastern Alaska are Kah Shakes in regulatory Section 1-F and Seymour Canal in Section 11-D. Both areas are expected to be open in 1989. A summary of important information for each fishery is shown in Table 1. Fishermen are reminded that regulations require identification tags, issued by the department, to be placed on one buoy at each end of a herring set gill net.

Only one 50 fathom net for each permit holder will be allowed during the 1989 season, as a result of new fishing regulations approved by the Alaska Board of Fisheries. New regulations also specify a one hour grace period for gill nets to be removed from the water following the announced closure time in both gill net areas. As under the previous regulations no gill net may be set after the announced closure time. Additionally, the department has been given the authority to open the fisheries for one hour or less without a grace period. An opening of this nature could occur if after the initial opening a small, but manageable, amount of herring is left from the guideline harvest level. The department will announce if a grace period will not be allowed due to an opening of one hour or less.

Kah Shakes

Set gill net sac roe fisheries have occurred in the Kah Shakes area since 1976. Seasonal landings have ranged from 171 tons (1978) to 3,250 tons (l983).

The estimated size of the Kah Shakes herring population is based upon spawn deposition surveys accomplished by department herring research personnel. This has proven to be the only practical assessment method for the Kah Shakes herring stock and has been used since 1978 to establish harvest levels. These surveys indicated that approximately 12.3 million pounds of herring spawned in the Kah Shakes area in 1988. Using this as an estimate of the 1989 population size, the calculation formula discussed above allows a harvest rate of 10.46% or a guideline harvest level of 647 tons of herring for the 1989 season.

In past years, the opening dates for the Kah Shakes fishery have ranged from March 20 (1981) to April 4 (1978). Department personnel will begin to monitor the Kah Shakes area in mid-March. At first, the monitoring will be limited to aerial surveys. Pending the observations of herring activity, department vessels and personnel will be on the fishing grounds during mid to late March and remain there through the completion of the fishery.

The required set gill net buoy stickers may only be obtained on the fishing grounds. Fishermen are encouraged to obtain these as soon as possible, after arriving on the fishing grounds, to allow plenty of time to securely affix the stickers to each set gill net buoy. The stickers will only be issued to valid permit holders and identification will be required.

Seymour Canal

The Seymour Canal herring roe fishing area encompasses the waters of regulatory Section 11-D. Herring roe fisheries have occurred in Seymour from April 26 (1984 and 1988) to May 10 (1986). Set gill net gear replaced seine gear in 1980. Harvests have ranged from 302 tons in 1987 to 618 tons in 1981.

Spawning ground egg deposition surveys conducted during the spring of 1988 indicated a mature herring spawning stock of approximately 6.5 million pounds. An estimated population level of this size allows for a harvest rate of 10.20% which represents a guideline harvest level of 332 tons of herring in 1989.

Department biologists will begin to monitor the Seymour Canal fishing area beginning in mid to late April. Pending the observed herring activity, department personnel and vessels anticipate being on the fishing grounds beginning in late April and remain through the fishing season.

The required buoy stickers used for the 1989 Kah Shakes fishery will be valid for the Seymour Canal fishery. New or replacement buoy stickers may be obtained only on the fishing grounds.

PURSE SEINE FISHERIES

There are two purse seine herring areas in Southeastern Alaska, Lynn Canal and Sitka Sound. For the 1989 season, commercial fishing is only anticipated for Sitka Sound. A summary of important information for each fishery is shown in Table 2.

Lynn Canal

The Lynn Canal herring roe area encompasses regulatory Sections 15-B, 15-C and that portion of Section 11-A north of Shrine Island.

Aerial and vessel surveys conducted in the Lynn Canal fishing area during the spring of 1988 indicated the population is still depressed and well below the spawning threshold level. The fishery has not been opened since 1982. The reason for the continued low stock level is not known. At the present low population level a herring roe fishery is not expected for the 1989 season.

Sitka Sound

The Sitka Sound sac roe fishing area encompasses the waters of Section 13-B, north of the latitude of Aspid Cape, except for the waters of Whale and Necker Bay.

In the spring of 1988, approximately 104 miles of beach were recorded as receiving herring spawn in the Sitka Sound fishing area. Subsequent spawn deposition surveys provided an estimated spawning population of approximately 117.3 million pounds of herring. The herring harvest strategy discussed earlier provides for a 1989 harvest rate of 20% of the estimated mature herring stock. This allows for a harvest of 11,700 tons of herring in 1989. A harvest at this level would be the highest ever reported for the Sitka Sound herring roe fishery.

Herring roe fisheries in Sitka Sound, have occurred as early as March 24 (1981) and as late as April 16 (1976).

During the time period that a fishery might be expected, herring distribution levels will be monitored throughout the area. The areas open to fishing will depend on the distribution of herring stocks and the need to provide for an orderly fishery that will allow for a harvest of good quality herring. The department anticipates the herring population will be composed of a large abundance of five-year-old herring.

The large anticipated harvest may necessitate more than one open fishing period and probably will occur in different areas. This will spread out the harvest more evenly throughout the spawning population and avoid taking the entire amount from one spawning area. This may necessitate some fishing prior to major spawning activity.

Fishermen can expect the initial open period to occur over a wide area of Sitka Sound where good quality herring have been identified. This should allow an opportunity for seiners to distribute over a wide area, providing for a more orderly fishery. Subsequent area openings will depend on the level of harvest available and the need to control and monitor the fishery to ensure the seasonal harvest level is obtained.

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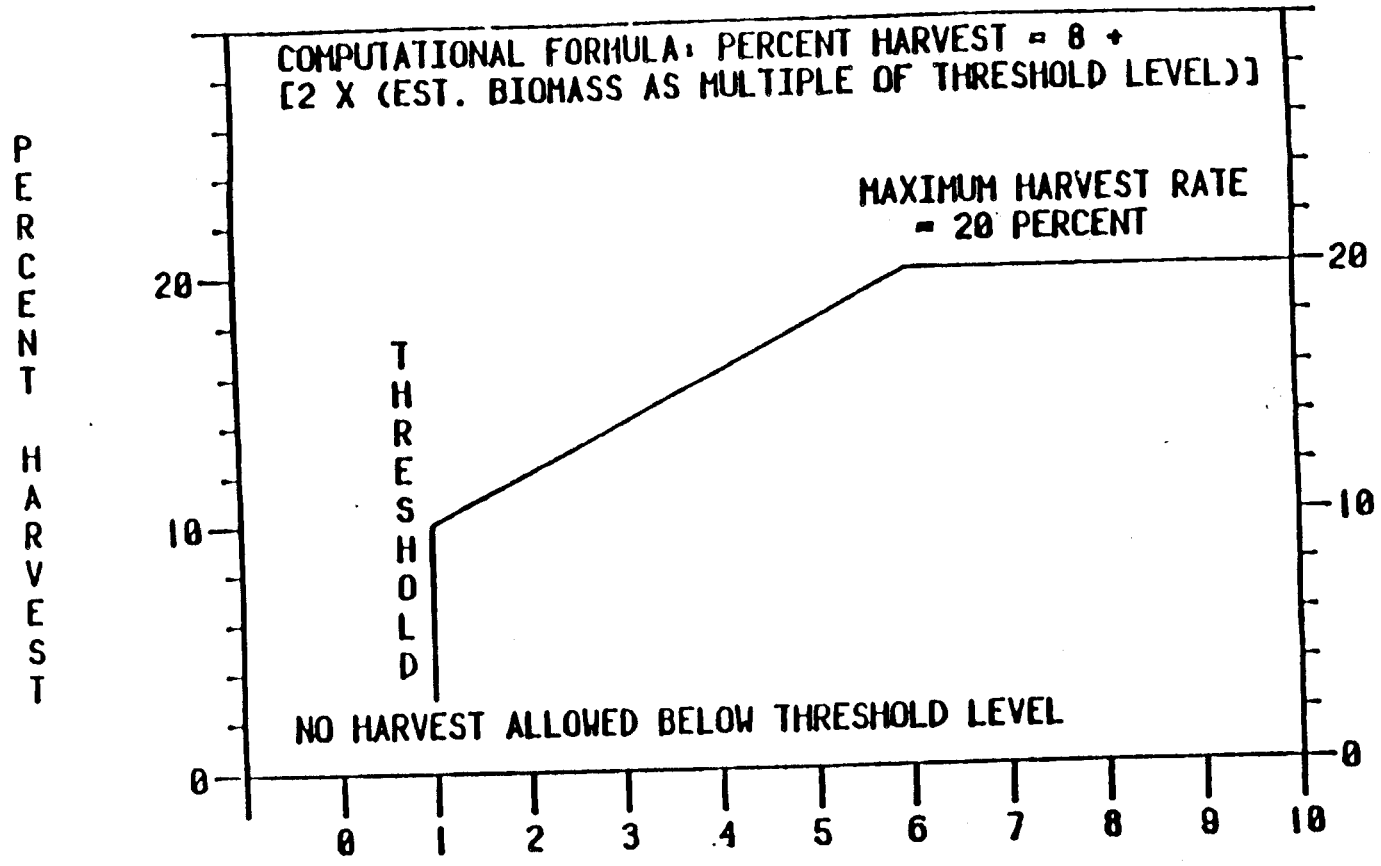

FIGURE 1 . GENERALIZED HARVEST STRATEGY FOR SOUTHEAST ALASKA HERRING STOCKS SHOWING ALLOWABLE PERCENT ANNUAL HARVEST RELATED TO ESTIMATED BIOMASS OF MATURE STOCK EXPRESSED AS A MULTIPLE OF THE ESTABLISHED HARVEST THRESHOLD LEVEL (ADF&G 1/83)

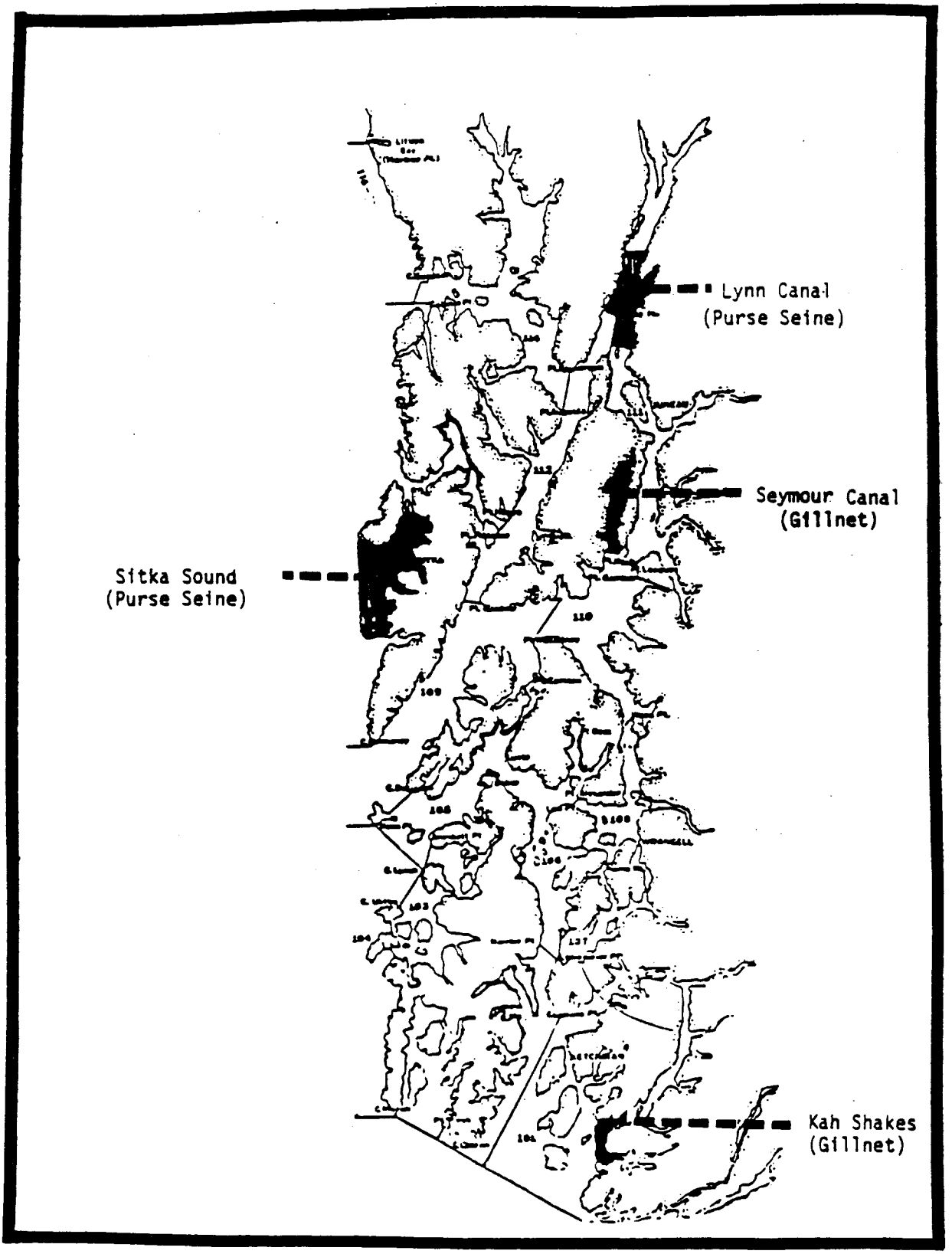

Figure 2. Southeast Alaska sac roe herring fishing areas.

Table 1. Southeast Alaska gill net herring sac roe fisheries information summary, 1976-1988.

	Seymour Canal[1]				Kah Shakes			
Year	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	200	195		May 9	300	426	March 23	April 2
1977	500	485	May 4	May 9	800	820	March 29	April 1
1978	500	729	May 2	May 8	680	171	March 26	April 4
1979	250	269	May 3	May 3	585	528	March 28	March 29
1980	Fishery Not Open				1100	1140	March 25	March 25
1981	600	615	April 28	April 28	1550	1840	March 20	March 20
1982	Fishery Not Open				1700	2279	March 20	March 26
1983	Fishery Not Open				2500	3250	March 23	March 24
1984	375	518	April 20	April 26	2100	2182	March 20	March 29
1985	Fishery Not Open				2300	2161	March 28	March 29
1986	300	339	May 5	May 10	1100	1536	March 29	March 31
1987	419	302	May 1	May 5, 6	1200	1440	March 24	March 26, 27
1988	530	586	April 20	April 26-May 1	953	1087	March 24	March 25

[1] Seymour Canal was purse seine fishing area prior to 1980.

Table 2. Southeast Alaska purse seine herring sac roe fisheries information summary, 1976-1988.

	Juneau[1]-Lynn Canal				Sitka Sound			
Year	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	750	432 Seine 124 Gillnet		April 26 April 29	780	800	April 10	April 16
1977	875	709 Seine 217 Gillnet		April 19 April 20	Fishery Not Open			
1978	500 200	602 Seine 346 Gillnet	April 19	April 20 April 21	250	175	April 4	April 5
1979	Fishery Not Open				2000	2250	April 7	April 12
1980	600	975	April 13	April 26	4000	4385	April 4	April 4 & 5
1981	725	761	April 17	April 23	2700	3506	March 23	March 24 & 26
1982	375	551	April 30	April 30	3000	4363	March 26	March 30
1983	Fishery Not Open				5500	5463	March 23	March 26 & 29
1984	Fishery Not Open				5000	5711	March 22	March 26, 27 & 28
1985	Fishery Not Open				7700	7475	March 24	March 29 and April 1 & 5
1986	Fishery Not Open				5029	5443	March 28	April 2 & 8
1987	Fishery Not Open				3600	4216	March 23	March 31
1988	Fishery Not Open				9200	9573	March 25	April 4 - 14

[1] The Juneau fishery was both a gillnet and seine area prior to 1980.